# AN ASSESSMENT OF PRESENTISM

A Thesis

by

BRANNON DAVID MCDANIEL

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

MASTER OF ARTS

May 2004

Major Subject: Philosophy

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Approved as to style and content by:

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## ABSTRACT

An Assessment of Presentism. (May 2004)

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There is a debate in the philosophy of time over the status of non-present entities. Do these things exist, and if so, what sorts of things are they? Recently, the debate has split into two groups, presentists and eternalists. Presentists hold that no past or future things exist now. Socrates does not now exist, though he did in the past; my future daughter does not now exist, though she may in the future. Ontologically, the present is distinct, serving to demarcate all that currently has existence. As far as the eternalist is concerned, all entities – whether past, present, or future – are equally real. If it was, is, or will be, it can be found in the eternalist picture of time. As such, there is no distinct present at which some entities exist while others do not; rather, everything enjoys the same ontological status.

I will be concerned to offer an assessment of the presentist view. Common objections against presentism will be examined, amplified, and answered where appropriate. I will not examine the arguments *in favor* of the presentist view. Rather, I wish to describe why it is that the eternalist feels compelled to deny presentism.

Ultimately, my goal will be to show that although presentism survives some of the current objections raised against it, it does not survive them all. Presentism is an interesting, but ultimately unsatisfactory view. There is a modified form of presentism (call it presentism*) that can meet the objections raised against the original position, and

after noting some of the objections raised against presentism, I will sketch the outlines of presentism* in some detail. I intend to show that presentism* is able to retain what is most valuable about presentism, while also withstanding certain objections that the latter view could not.

To Mom

## ACKNOWLEDGMENTS

I would like to thank Chris Menzel, Hugh McCann, and Max Cresswell for helpful comments and discussion, both of which ultimately helped to produce a better thesis than I had originally planned. In different ways, each of these individuals helped me recognize that it is difficult enough to defend presentism; attacking eternalism is a rather more daunting a task, and as a result, this thesis is significantly shorter than it would have been otherwise. Finally, thanks are due to Chris Menzel, Hugh McCann, and Harold Boas of the Mathematics Department for reading over the entire thesis, and overseeing the occasion of my defense.

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# I. INTRODUCTION

## 1. Framing the Debate – What It Is, and What It Is Not

*Presentism* denies that past and future entities exist. This is the view that I will be examining. Presentism stands in opposition to *eternalism*, which holds that all entities, whether past, present, or future, stand on an equal ontological footing – they all exist. Put a different way, the general question engaging each of these viewpoints is the following: do past and future individuals exist in some sense, or are they nothing at all? The eternalist takes the former line, while the presentist adopts the latter.

Although I will not be assessing the relative merits of both sides in this dispute, I must briefly note that this is very much a live debate, and that the disagreements encountered are substantial. I take presentism to be a more "commonsense" view than eternalism, but this is not a telling argument in its favor. If everyone agreed with my assessment and thought that "commonsense appeal" = truth, then there would be nothing more to say on the matter. This is clearly not the case. Presentism is only an interesting philosophical position insofar as it is not universally accepted. And since it is not the case that everyone is a presentist, there must be some other philosophically interesting position available. Eternalists claim that their position fits the bill. As such, we have a genuine philosophical disagreement, and it is because of this disagreement that I intend to evaluate presentism. But before I do that, I must do better than merely point at

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This thesis follows the style and format of *The Chicago Manual of Style*.

contentious groups of philosophers; I must offer some reasons for thinking I am correct. If the debate is legitimate, then presentism is a controversial position, and if it is a controversial position, then there is certainly a point in exploring the merits and demerits of the view.

At first glance, it may be tempting to conflate the presentism vs. eternalism debate with that of the A- vs. B-theory.[1] A-theorists are usually presentists, and B-theorists are usually eternalists. But to identify the two sets of views with each other is mistaken. An A-theorist is one who regards the tenses – or *A-relations* – of past, present, and future as an irreducible part of reality. To eliminate tensed talk from our discourse is to take an incomplete view of the world. A B-theorist, on the other hand, sees the tenses as being human constructs to be dispensed with in favor of the *B-relations* "earlier than" and "later than". This is a well-known debate within philosophical discussions on time[2], but it is not the same debate as that between eternalism and presentism. To see that they are distinct, it will be helpful merely to note that Quentin Smith (1993), though calling himself a presentist as well as an A-theorist, sees reality as a four-dimensional spacetime manifold, in which all entities exist, though the present remains distinguished. This fact is instructive, because Smith is here combining portions of presentism and eternalism into an amalgam which he dubs 'presentism', but which would not be so-called by most ordinary presentists. For sake of simplicity, the stock presentist/A-theory view holds that (i) only the present exists, and (ii) the tenses are an *irreducible* part of reality. The corresponding eternalist/B-theory position is that (iii) everything exists (with no distinction between past, present, or

future), and (iv) the tenses are a *reducible* part of reality. Smith accepts (ii) and (iii), which means that he should be classified as an eternalist who yet holds to the A-theory. That he allots a special place to the present further complicates matters. What is clear, however, is that one need not be a presentist to be an A-theorist. Witness "growing-block" theorists such as C.D. Broad (1959) and Michael Tooley (1997), who regard the present as somehow privileged – since it forms the leading edge of what currently exists – and yet who both hold that the past as well as the present exists. Put differently, that which exists is an ever-increasing block, growing as more and more slices of existence become present and then past.

A further worry is that presentists and eternalists are arguing over mere trivialities.[3] When the presentist claims that only the present exists, it may be asked whether 'exists' is being used in a tensed or a tenseless fashion. If it is tensed, then the statement is trivially true – what exists *now* = present – and if it is tenseless, then the statement is obviously false – what exists *simpliciter* is what exists at some time in the past, in the present, or at some time in the future. Or take the eternalist statement that non-present times exist. Once again, if this is uttered tenselessly, then it is trivially true, but if it is a tensed statement it is false. If this is the case, then there seems to be no special debate arising between presentists and eternalists that cannot be settled by recourse to tensed vs. tenseless disputes. But this concern can be answered as well. In doing so, another analogy that will prove useful here is the well known modal debate between actualism and possibilism. At various points in what follows, I will employ analogies between presentism and actualism on the one hand, and eternalism and

possibilism on the other. If non-present times are like possible worlds, and the present time is like the actual world, then it becomes fairly intuitive that a number of concerns holding in the modal arena will also hold in the temporal one. It is a commonplace that actualists and possibilists disagree over what exists *simpliciter*. Actualists say that what exists is exhausted by what exists in the actual world, while possibilists claim the actual world is only a small portion of everything that exists, since unicorns and golden mountains exist in other possible worlds. In this modal debate there is a genuine clash between those who think that existence has a narrower range (actualists) and those who think existence has a wider range (possibilists). The temporal debate between presentists and eternalists is quite similar in this respect. Presentists think that what exists is what is present, while eternalists widen the range to include past and future entities as well. So long as we regard the modal disagreement as substantive, we should view the temporal one in the same way.

## 2. How It Will Proceed

With the terms of the debate clear, it is time to move on to more positive concerns. I will detail the most prominent arguments against presentism, as well as possible presentist responses to these difficulties. Common objections against presentism will be examined, amplified, and answered where appropriate. The basic structure of this thesis will not attempt to be balanced in its assessments of the opposing views. As I have noted earlier, I only mention the larger presentist vs. eternalist dispute to highlight the fact that presentism is a philosophically interesting position. I will not

be concerned here to examine the arguments in favor of the presentist view. Rather, I wish to describe why it is that the non-presentist[4] feels compelled to deny presentism. To do this, it will be impossible to generate arguments of my own at every point, and occasional canvassing of the relevant literature will be inevitable. In spite of this, my aim is to contribute something substantive to the debate wherever possible. Although most of the arguments on both sides have been leveled previously, I plan to expand and redirect them in certain interesting and (I hope) successful ways.

Next, my goal will be to show that although presentism survives some of the current objections raised against it, it does not survive them all. Presentism is an interesting, but ultimately unsatisfactory view. There is a modified form of presentism (call it presentism*) that can meet the objections raised against the original position, and after noting some of the objections raised against presentism, I will sketch the outlines of presentism* in some detail. I intend to show that presentism* is able to retain what is most valuable about presentism, while also withstanding certain objections that the latter view could not.

Finally, I will discuss the Special Theory of Relativity (STR) at some length. STR is unique among the problems facing presentism, because it is seen to be the one objection that most threatens the position.[5] Whereas most other objections focus on negative consequences that the presentist seems forced to accept, the objection from STR claims that the entire project of presentism is incoherent. If this is true, the appropriate solution will not be to clarify certain aspects of the presentist position, but to renounce the view completely. It will be my contention that the presentist need not give

up her view. In fact, the nature of my solution will be compatible with a variety of presentist positions, which means that I will not be claiming superiority here for presentism*. Rather, any type of presentist response will do.

## II. MANY OBJECTIONS, NOT AS MANY SOLUTIONS

### 1. Presentism Stated

According to the presentist, no past or future things exist. Socrates does not now exist, though he did in the past; if I am to have a daughter in the future, then my future daughter does not now exist, though she will in the future. Ontologically, the present is distinct, serving to demarcate all that currently exists. Presentism is intuitive. In our everyday conversation, we think of time more or less in this fashion. What has occurred in the past is now gone. I cannot somehow get back to the event that is my eating breakfast yesterday morning. No matter how I try to reenact this event – from eating the same food, to wearing the same clothing, and so on – I will never succeed in regaining *that* event, which is now past. Presentism seeks to do justice to the commonsense view that if something exists, it can enter into various relations with other entities: it can act or be acted upon by another; it can be referred to, picked out, and distinguished from other such existent individuals. If we reflect but a moment, we will recognize that everything we encounter by way of our senses is a present thing. My desk and my computer presently exist as I am now sitting and typing this sentence. I can speak to my friend, who is now 23 years old, though it cannot be the case *now* that I am speaking to this same individual when he is 13 years old. Although I talked to him 10 years ago, that event is now past and no longer exists.

As noted in the introduction, presentism usually involves commitment to a tensed theory of time.[6] On this view, tensed sentences express irreducibly primitive propositions about the world, such as the following:

(1) It *was* the case that Socrates drank hemlock.

(2) Dennis Kucinich *will not* be elected president.

(3) It is *now* cloudy.

What is distinctive about these sentences is that the utterance of each presupposes a particular vantage point within time. If I utter (3) on a sunny day, my utterance will be false. Had someone thought to utter (1) before the occasion of Socrates drinking hemlock, the utterance would have been false, and so on. Each of sentences (1) – (3) must be uttered at a certain time in order for them to come out true. Presentists regard tense as an integral part of the world because they think there are certain truths that are left out on a tenseless view of time. For instance, the proponent of the tenseless view – or detenser for short – will claim that (3) can be given a tenseless reading, such as

(4) It is cloudy on 10 June 2003.

But according to the proponent of the tensed view – or tenser – there is something important that the detenser misses in substituting (4) in place of (3), namely what is occurring *now*. One can hear an utterance of (4) and yet be unaware that it is intended as a paraphrase of (3), i.e. it is cloudy now, at this moment. Someone who is unaware of today's date may nevertheless be quite certain that it is cloudy today, and since this is true, it seems that the detenser is leaving an important fact out of her theory.

## 2. Objections to Presentism

There are several prominent objections leveled against presentism. Although some of them can be managed more easily than others, taken together, the eternalist sees these difficulties as mounting a cumulative case against presentism, which in turn, favors the eternalist position. (The main alternative to eternalism is presentism, and if presentism is shown to be an incoherent position, then eternalism wins by default.) I will deal with each of these objections in turn by looking at attempted presentist remedies.

### 2.1 The Incoherence of Temporal Passage

It is an essentially presentist notion that time be regarded as dynamic; unless time flows, it is difficult to understand how it is that certain events that were formerly present, are now past – and nonexistent – and further, how it is that certain events that were future – and nonexistent – are now present. This changing from future to present, and from present to past implies that events move through time. The presentist wants to maintain this idea of movement through time since this corresponds with our everyday experience. 12 June has not arrived yet, but it will do so soon. And when 12 June arrives, 11 June will be past and exist no longer, having "moved" into the past from its position in the present.

This idea of temporal movement is very intuitive, but there is a serious difficulty to be managed by those who would defend the idea of time's passage. As J.J.C. Smart (1949, 1980) and D.C. Williams (1951) point out, if time passes, one may sensibly ask

how fast it passes. In order to give a coherent answer to this question, however, one will have to posit a hyper-time, in relation to which ordinary time flows. But if one posits a hyper-time, it will be reasonable to ask how fast the hyper-time flows, and to account for this, one will have to appeal to a hyper-hyper-time, and so on without end. Attempting to avoid this difficulty, the presentist may follow the lead suggested by Arthur Prior (1962: 7-8), and reply that there is no hyper-time needed, that time simply flows at a given rate, such as one second-per-second, but this seems unsatisfactory, as the attempted explanation provides what one already knows: namely, that time is flowing as fast as it is flowing.

A more promising answer is that put forward by Ned Markosian (1993), in which he attempts to demonstrate that the rate of time's passage need not require a hyper-time. To this end, he sets out the "rate of passage" argument as follows:

> (5) If it makes sense to say that time passes, then it makes sense to ask 'How fast does time pass?'.
> (6) If it makes sense to ask 'How fast does time pass?', then it's possible for there to be a coherent answer to this question.
> (7) It's not possible for there to be a coherent answer to this question.
> _____
> (8) It doesn't make sense to say that time passes. (1993: 838)

Markosian observes that if one asks how fast a runner is moving, one will expect to be given the rate of speed in terms of a clock, which serves as a stand-in for the rate of rotation of the earth in relation to the sun. We in turn often think that the rate of the earth's rotation with respect to the sun is our most basic measurement of the passage of pure time. Markosian thinks it would be rather odd for us to ask at what rate pure time

passes, as this rate admits of no definition, unless we are to define pure time's passage in terms of itself, claiming, for instance, that it passes at the rate of one second per second.

What we *can* do is define the rate of passage of pure time in terms of less fundamental rates of change. One who believes in the existence of pure time takes it to be the process that grounds the rate of change of all other phenomena. Clocks are stand-ins for the rotation of the earth around the sun, and the rotation of the earth around the sun is a stand-in for the passage of pure time. Although Markosian thinks that pure time is an important constituent of one's temporal views, he nevertheless acknowledges that one need not admit this concept into one's ontology in order to benefit from his solution.

> So if the pure passage of time thesis is false, then all of our talk about the rates of different changes must be understood as talk that is meant to compare the rate of one ordinary change to the rate of another; a question such as 'How fast does x change?' must be a question about the speed of the change in x relative to the speed of some other change(s). (1993: 841)

If I take the rotation of the earth to be simply a way of measuring time, and not the primitive stand-in for something like pure time, I can say that someone runs at the speed of 10 miles per hour, or that time passes at the rate of one hour for every 10 miles covered by the runner. Changes are defined in terms of each other, and that is the end of the story. This approach works perfectly well in our daily activities, so there is no apparent reason why it should not prove equally effective in measuring time's passage.

Markosian's overarching point is that the notion of a rate of change is a coherent one, and we can see this by looking at our everyday methods of measuring change, which consists in taking two rates of change – again, the constant speed of the runner, as well as the movement of the clock's hands – and defining each in terms of the other. In

short, Markosian denies the truth of (7) and thereby short-circuits the argument against time's passage.

There is little for the presentist to fear from Smart's (1949, 1980) and Williams's (1951) objections, for in this case the commonsense view of time's passage has been vindicated through everyday experience.

## 2.2 Relations Between Present and Non-Present Entities

As the presentist's ontology only acknowledges present entities, a rather glaring difficulty arises as soon as one attempts to address non-present entities. The general difficulty, mentioned by Ted Sider (2001: 25-26), can be illustrated by the following: everyone speaks about past individuals that no longer exist, and there are assuredly presentists who study and admire long-deceased philosophers such as Socrates. And if we speak about such past individuals, then we must be related in some way, but how is it possible to be related to something that does not exist?

The presentist has an answer to this objection, which involves an indirect relation between the subject and the object. According to Markosian (forthcoming), although the presentist must describe the relation as being literally false (for an existent thing cannot be related to a non-existent thing), she may still do justice to our intuitions on the matter. Following Prior (1970) and Markosian (unpublished), many presentists think of time as being fundamentally similar to modality, while being fundamentally dissimilar to space. More specifically, the present is analogous to what is actual, while both past and future are taken to be merely possible. The obvious consequence of this view is that presentists

tend to be actualists about modality, holding that only actual entities – and not mere possibilia – exist. For the presentist with actualist sympathies, referring to a nonexistent individual such as George W. Bush's possible son (BPS) presents exactly the same difficulty as referring to Socrates. This may sound odd, as Socrates once existed and now does not, whereas BPS has never existed, but Markosian thinks this worry only holds if one chooses to disregard the rather common presentist commitment to time being analogous to modality. Or, as Markosian puts it, "Given the fundamental similarity between time and modality, being formerly real is analogous to being possibly real. And given the fundamental difference between time and space, there is no reason to think that being real at a remote temporal location is analogous to being real at a remote spatial location" (Forthcoming: 14). Socrates does not exist, and neither does BPS.

On a Markosian-type analysis, the appropriate actualist rendering of the statement "I admire BPS" would primarily involve a cluster of properties – 'being the son of the 46$^{th}$ President of the United States' 'being male,' and so on – such that in admiring these properties, I associate them with the nonexistent entity BPS:

> (9) There are various properties, $p_1$-$p_n$, such that (i) I associate $p_1$-$p_n$ with the name 'BPS', and (ii) thoughts of either $p_1$-$p_n$ or the name 'BPS' evoke in me the characteristic feeling of admiration, and (iii) $(\exists x)$(x has $p_1$-$p_n$ and x is the referent of 'BPS'). (Forthcoming: 15)

If we recall the fundamental analogy between time and modality, the presentist analysis of the statement "I admire Socrates" will run similarly to (9) above:

> (10) There are various properties, $p_1$-$p_n$, such that (i) I associate $p_1$-$p_n$ with the name 'Socrates', (ii) thoughts of either $p_1$-$p_n$ or the name 'Socrates' evoke

> in me the characteristic feeling of admiration, and (iii) ($\exists$x)(x has $p_1$-$p_n$ and x is the referent of 'Socrates'). (Forthcoming: 15)

On Markosian's rendering, when I claim to admire Socrates, I am admiring certain properties associated with the deceased philosopher, such as 'being the teacher of Plato', 'being forced to drink hemlock', and so on. And it is these properties that not only serve to adequately distinguish the nonexistent individual Socrates, but also serve to connect him historically with me. For instance, it is one of Socrates' properties that he was the teacher of Plato. It is also one of his properties that he was the teacher of the teacher of Aristotle. And he was also the teacher of the teacher of the teacher of Alexander the Great. Continuing in this way, we can connect Socrates to any number of other historical figures. Presumably, if I were to enumerate enough of Socrates' distinguishing properties, I could pick out a clear causal chain between him and myself.

This is a strange solution for the presentist to give. It seems that in admiring an individual such as Socrates, one is admiring *him*, and not a cluster of properties that one takes to be associated with him. We admire people who possess commendable traits, not the traits in isolation from the person exemplifying them. Or, to put the matter differently, we admire courage, honesty, and other virtues, but in doing so, we are admiring abstract objects, and not individuals. And our initial problem was not whether we could talk sensibly about virtuous properties, but whether we could talk sensibly about *Socrates*, and there seems to be no satisfactory way to do this as presentists. Furthermore, the eternalist is not apt to be impressed with the presentist response when a much simpler solution is available: as far as the eternalist is concerned, referring to

Socrates is as straightforward as referring to another entity that presently exists. With no ontological distinction between past, present, and future, no problem arises.

### 2.3 Singular Propositions About Non-Present Entities

A further difficulty goes hand-in-hand with the previous problem. Because there can be no genuine relations between present entities and non-present ones, it is natural for the eternalist to press a related objection: if there can be no relation between present and non-present entities, then surely it must be equally impossible for present entities to express singular propositions about non-present entities. A singular proposition must be expressed by a sentence that refers directly to a given individual. For a singular proposition to be about a specific entity, that entity must exist when the utterance is made. How, therefore, is the presentist to manage such a mundane feat as speaking about Socrates, or referring to him in any way, when his ontology will not allow the existence of any such individual?

Markosian (forthcoming) offers a solution that attempts to sidestep this difficulty. We must first distinguish between two types of meaning that a normal declarative sentence can have: propositional content and linguistic meaning. The propositional content of a sentence is just the proposition it expresses, whereas the linguistic meaning of a sentence pertains to the truth conditions associated with the given sentence (Forthcoming: 18-19). To clarify, one could utter the following sentence in some possible world $w_1$:

(11) Tony Blair is the Prime Minister of Great Britain.

Unbeknownst to the inhabitants of $w_1$, however, no such individual as Tony Blair exists in $w_1$, which means that although this sentence is intelligible, it does not have any propositional content at $w_1$. (11) lacks propositional content in $w_1$ because there is no referent for the name 'Tony Blair'. (11) has a linguistic meaning, though in $w_1$ it is neither true nor false, as no proposition can be uttered meaningfully about Tony Blair (since he does not exist in $w_1$). And although (11) is neither true nor false in $w_1$, we know what conditions would have to prevail for (11) to be either true or false in $w_1$, namely, that Tony Blair would have to exist in $w_1$. More clearly, for (11) to be true or false in $w_1$, there would have to be an individual in $w_1$ who possessed relevantly similar properties to Tony Blair in w (the actual world), such as "is British", "is affiliated with the Labour Party", "is a white male", etc.

Again, it becomes important for the presentist to utilize the similarity between time and modality. In a world such as $w_1$ where Tony Blair is a mere possible entity, we have seen that any sentence uttered in that world which claims to refer to him will have no propositional content, since only actual entities can serve as referents. The same situation holds in the temporal case. What is not present is analogous to the merely possible, and correspondingly, what is not present cannot be the referent of an utterance. Now, take the sentence

(12) Socrates was a philosopher.

Uttered by someone at present, (12) has linguistic meaning, but no propositional content. (12) remains intelligible – the speaker is not uttering gibberish – but there is nothing to

which the utterance can refer. More clearly, the correct truth condition for (12) seems to be the following, where P indicates the past-tense operator:

> (13) 'Socrates was a philosopher' is true iff (∃x)(x is the referent of 'Socrates' and P(x is a philosopher)). (Forthcoming: 20)

We can see that (13) is the correct interpretation of (12) because when (12) is uttered, in order for the sentence to have any propositional content, there must *now* exist an individual picked out by the name 'Socrates' who was a philosopher at some point in the past. But of course there is no such individual who exists *now*, and so it is that (12) is not true when uttered at the present time. The presentist can explain why it is that we often take sentences like (12) to be meaningful, as these sorts of sentences have *linguistic* meaning. But this is managed while maintaining the appropriate ontological commitment: only present entities exist, and since this is so, (12) can have no propositional content, as Socrates does not exist.

Once more, the eternalist is unlikely to be satisfied with this answer, and will hold that the presentist is going to a lot of effort to explain something that is easily and intuitively understood from an eternalist perspective. The eternalist flatly accepts that Socrates exists, and so when she utters (12), the sentence is true without qualification. The distinction between propositional content and linguistic meaning is entirely superfluous: because Socrates exists, it is perfectly natural to predicate any number of things of him, and each of these attributions will simply be true or false. Beyond this preference for simplicity, however, there is something strange about the proposed presentist solution to the problem of referring to non-present entities. Markosian wants to do justice to our intuitions on the matter by granting that an utterance of (12) has *some*

sort of meaning even though it lacks propositional content. But there is reason to think this attempt is unconvincing. He notes that a sentence such as (11) is not true in $w_1$, but he also states that (11) is not false in $w_1$ either, because (11) has no propositional content in $w_1$ (forthcoming: 19, n. 32). As Markosian holds to the analogy between time and modality, a sentence such as (12) should be analyzed exactly as (11), that is, (12) is neither true nor false at the present time, since it has no propositional content now. But if (12) is neither true nor false, then what sort of linguistic meaning can it have? In order for a sentence to be either true or false, it must have propositional content, but if linguistic meaning is neither truth nor falsity, then it seems a strange stand-in for the ordinary, everyday conception of meaning that we readily appeal to when trying to make sense of a sentence such as (12). The appropriate and consistent – though perhaps unappealing – presentist response seems to be that strictly there are no meaningful propositions about non-present entities. This is a consistent response because it follows directly from the presentist's position that there are no non-present entities. It is unappealing, however, because it does not explain why so many propositions about these nonexistent entities are so common and so easily understood by those who hear them; these propositions *seem* to be meaningful, though the presentist is unable to say why this is the case.

### 2.4 Temporal Becoming

A further objection against presentism is that the notion of temporal becoming is incoherent. When something becomes present, from what does it become? The

presentist seems to think that every passing moment, vast numbers of entities are popping into existence out of nothing. Smart's (1980) complaint is that the word 'becoming' requires the existence of an entity, which in turn, becomes something. Intuitively, an entity must exist prior to becoming something else. On the presentist picture, an entity becomes present, but it does not have a prior existence; rather, the moment of becoming is a different sort of becoming altogether, the moment where nothing becomes something, and it is this idea that Smart finds unintelligible.

A related argument is that put forward by Michael Rea (2003: 258-259), which amounts to the idea that an entity becoming something from nothing contradicts our everyday experience. When a baby is born, it does not come into being out of nothing, but rather out of cells produced from its parents. When mitosis occurs, cells come into existence, but they did not come to be from nothing, since it was the initial division of the parents' cells that brought about the existence of these new cells. Thus the appropriate expression describing this event would seem to be not the coming into existence of a baby (if by this, we mean an entity's coming into existence out of nothing), but a group of cells changing from having existence in one state to having existence in another state. Here again, presentism seems to be in trouble.

## 2.5 Truthmakers

There is a common opinion, dating back at least to Russell (1918), and defended more recently by D.M. Armstrong (1997) that the world must be a certain way in order to ground the truths of our utterances.

> Let it be the case that particular *a* instantiates universal F. *a* is F. Must there not be something about the world that makes it to be the case, that serves as an ontological ground, for this truth?…We are asking what in the world will ensure, make true, underlie, serve as the ontological ground for, the truth that *a* is F. The obvious candidate seems to be the state of affairs of *a's being F*. In this state of affairs (fact, circumstance) *a* and F are brought together." (1997: 115-116)

If something is said to be true, in the simplest cases, at least, then it is true in virtue of being *about* a specific entity or entities. If I exclaim that the sky is blue, then my utterance will be true if, in fact, the sky is blue. In short, our language reflects the world. It is fairly easy to see how a great number of statements could have truthmakers of an easily verifiable sort. Truths about dogs, people, and countless other objects can be easily accepted so long as dogs, people, and other objects exist in the world. But so far this is a rather narrow way of looking at the issue. Statements such as "A three-legged dog lives next door", "My aunt is tall", "I am wearing a hat", etc., are all about present states of affairs. In stating what is the case *now*, we can check – at least in theory – the truths of these statements by going out in the world and seeing if the various goings-on match up with what we say. What about statements concerning the past or future?

(14) The sky was blue yesterday.

(15) I will eat a bowl of cereal tomorrow.

One may think of (14) and (15) differently, saying that the former is obviously true (or false as the case may be), but that (15) is a very different sort of statement altogether.[7] The presentist cannot endorse this intuition, however, as the past and future are exactly analogous, in that neither exists in any sense. As a result, there is nothing in the presentist's ontology to ground the truth of the likes of (14) and (15). Nothing in the

past or future exists, so it is difficult to see how it is that the presentist can find a truthmaker for (14) and (15).

Rea (2003: 261ff) notes that this objection need not worry the presentist. What is true depends on what exists, and what exists depends on what one's ontology allows. As the presentist's ontology only countenances present entities, then it follows that – for the presentist, at least – true propositions are made true by what exists at present, which further entails that all true propositions are made true in virtue of those present entities. In short, the truthmaker objection has force only when one attempts to go beyond the bounds of one's ontology. If the presentist were to say that some propositions concerning the past or future were true or will be true, then he would be in trouble. And it seems that he is in trouble, for there seem to be a great many propositions about non-present entities that are true. But the trouble he is in has not been brought about by concern over truthmakers, so much as it has arisen over the difficulties encountered in section 2.3 concerning reference to non-present entities. If the presentist admits that there are no propositions about non-present entities, then there is a sense in which the truthmaker objection has been answered: what exists is what is present, and true (or false) propositions can only be made about what exists. But the presentist still must explain why it is that many past tense and future tense propositions seem to be clearly true or false, and it is not clear how he can give a *presentist* answer to this objection. In this case, the presentist answer is consistent but implausible.

On the other hand, if the presentist claims that there are true propositions about non-present entities – and many people think there are – then the truthmaker objection

collapses into the objection we encountered in section 2.3 concerning reference to non-present entities, and as we have seen, Markosian's proposed solution to this problem is inadequate. In both cases, the presentist is faced with a serious difficulty: first, he may deny that there are any meaningful propositions about non-present entities, in which case, presentism retains its coherence, but only at the expense of sacrificing its plausibility. Second, he may acknowledge that there are meaningful propositions about non-present entities, but this admission requires the abandonment of presentism.

# III. PRESENTISM*

## 1. An Outline

There is another response available to the presentist, provided she is willing to alter her views concerning non-present times. I will call this view presentism*, and will spend the remainder of this chapter sketching the details of the presentist* position.

In light of the foregoing, it will be helpful to construe time as being composed of atoms, which we shall refer to as metaphysical atoms, conceived along similar lines to Bertrand Russell's logical atomism (1918). On Russell's view, we construct the world out of sense data. Instead of claiming that I see an apple, I would claim to see a red patch of color, as well as a roughly spherical shape, to feel a certain hardness with my finger tips, and so on. Out of these individual perceptions, I would construct the idea of an apple, though strictly, I do not perceive any such thing. The apple is a "logical construction" that I create out of my more basic perceptual experiences.

Although my view of metaphysical atoms has similarities to this brief sketch of Russell's position, in certain respects it is quite different. We do not perceive metaphysical atoms, though it is true that the objects of our experience are composed out of them. I will return to task of explaining just what metaphysical atoms are, but for now, this cursory statement will suffice to give a flavor for what follows.

The future continues to be unlike the past and the present, and we can persist in saying that it is nothing, so long as we understand this to mean that there is nothing in the future which is determinate. The future is an as-yet-undetermined, boundless

expanse of metaphysical atoms. Our language requires determinate entities and events for referents, and the future contains none of these, which leaves the future open in the desired fashion.

These metaphysical atoms are simples that neither come into, nor go out of, existence. Rather, they are eternal. This is somewhat analogous to the parents who conceive a child. Although the child is composed of a new combination of cells, there is no new matter that has come into being with its birth. The world contains matter, and this matter gets recombined in a multiplicity of ways, resulting in new entities. The analogy only goes so far, however, as there is no distinction between metaphysical atoms and physical atoms: physical atoms are just instantaneous collections of metaphysical atoms which coalesce at the present moment. At this point, the presentist might become suspicious of presentism*. The presentist is committed to the nonexistence of all non-present entities, but it appears as though presentism* violates this commitment by postulating the existence of a future populated with metaphysical atoms. In response, it is true that if the presentist is committed to denying the existence of *any* future entity, then she will not be able to accept presentism*. But I take it that what is valuable about presentism is that it leaves the future indeterminate, and this is something that presentism* preserves.

There are no physical entities populating the future, no determinate individuals which may be the subjects of our linguistic utterances. So although metaphysical atoms are identical with physical atoms, this identity relation only holds at the present moment, which means that the future *does not* contain a world full of physical beings, as desired.[8]

When these metaphysical atoms exist as future entities, they are indeterminate, having no shape or definite grouping, which would enable them to be the referents of our language. When they reach the present moment, they form discrete units, combining in such a way as to form the physical atoms that constitute present entities. Proceeding beyond the present and into the past, these atoms thereafter cease to retain the distinct form they received during the present, and this ontological degeneration occurs at every moment. The present is filled with instantaneous temporal "slices" of every present entity. With every passing moment, the temporal flow of metaphysical atoms combine at the present moment in a multiplicity of ways and at a multiplicity of places. These atoms then disassemble immediately thereafter, which leaves them in a similar state as when they were future entities – existent though scattered and disparate. But now a further difficulty arises: how can we fix reference to the metaphysical atoms once they cease to be the entities, physical and otherwise, to which we are able to refer? If this solution is to be a *presentist* solution, then it should remedy the inherent presentist deficiency of being unable to refer to non-present entities, while simultaneously acknowledging the essential presentist doctrine that the only existent entities are present entities.

To answer, it is first necessary to point out that on the presentist* view, there are no continuants. The "entity" that was Socrates was nothing more than a fiction, invented by us for convenience. To take a more recent example, "I" am a collection of temporal slices, and although, strictly, only one temporal slice exists at every passing moment, there seems to be a strong continuity between past slices and the present slice. At every

passing moment, there is a temporal slice that exhibits the property of being 'Brannon-like', which is relevantly similar to preceding temporal slices such that we have some justification in calling the collection of those slices 'Brannon'. To be clear, there is no *collection* of temporal slices (since only the present slice exists), and there is no ontological entity that is "I" (if by 'I' it is meant an entity that persists over time), and yet it is very convenient to think of previously-existent Brannon-like slices as constituting some temporally composite entity, and we take this to be what is referred to by the expression "I". So the problem of referring to Socrates is very similar to the problem of referring to me: strictly, there was never any entity named Socrates, though there were temporal slices that had Socrates-like properties. Now, when there are no present Socrates-like temporal slices, we cannot refer to the entity "Socrates", but then again, no one could have referred to "Socrates" even when such Socrates-like slices were present. Instead, what could have been said was that metaphysical atoms continually coalesced into instantaneous Socrates-like slices.

Forming into distinct entities at the point of the present, the formerly indefinite metaphysical atoms become the collection of physical atoms – which, in turn, are nothing but logical constructs – of property exemplification. Note that the transition from indeterminate metaphysical atoms to distinct physical atoms occurs simultaneously with the latter's property exemplification. There is not yet an instance when there exists a distinct grouping of physical atoms without a correspondingly exemplified property (or set of properties). When an entity becomes past, however, a situation arises which is

analogous to that which held for the future, namely that our physical atoms have now reverted to the formless, indeterminate entities that once populated the future.

It is fairly common for presentists to use the sentential tense operators ‘P’ and ‘F’, which are used to pick out past and future times without incurring any added ontological cost. According to the presentist, the appropriate analysis of the sentence ‘Socrates is a philosopher’ is the following:

(16) P(Socrates is a philosopher).

Due to the scope of the tense operator, the presentist is not committed to saying that Socrates exists. Rather, the sentence simply expresses the idea that at some time in the past, there exists an individual designated by the name ‘Socrates’, who is a philosopher, is the teacher of Plato, and so on. Again drawing on the analogy between time and modality, the presentist (temporal) analysis seen in (16) will be similar to the actualist (modal) interpretation of the sentence ‘Possibly, my daughter exists’:

(17) ◊(my daughter exists).

In the same way that the actualist is not committed to the actual existence of my possible daughter, the presentist is not committed to the existence of Socrates. (17) states that in some possible world, my daughter exists, just as (16) states that at some past time, Socrates exists and is a philosopher. Keeping with the analogy between time and modality, the presentist can regard all non-present times in the same fashion as the actualist regards non-actual worlds. Just as the actualist denies the existence of my daughter (since she is a possible entity), so the presentist denies the existence of Socrates (since he is a non-present entity).

It is important to remember that Socrates does not now exist in any sense. Presentists acknowledge that there are, in fact, certain differences between past and future. Causal chains, for instance, run from the past to the future, and not vice versa. There is an acknowledged need to be able to refer to Socrates, whereas the same cannot be said of supposed future entities. Reference to past entities is an important part of everyday discourse in a way that reference to future entities is not. Speaking about Socrates, everyone (or most everyone) will know that I am referring to a distinct individual, one of the most well known philosophers in history. If I refer to my future grandchild, my audience will understand that I have stipulated something about what may or may not be the case at some point in the future, referred to an individual who does not now exist, and may not ever exist.

## 2. The Motivation Behind Presentism*

There are some clear benefits to accepting presentism* in place of presentism. First, the presentist* may still utilize Markosian's (1993) defense of temporal passage. Presentism* is a dynamic account of time in which certain entities (metaphysical atoms) are continually flowing past the point of the present, where they become temporal slices, only to collapse back into their previous state once the present moment is passed. Markosian's defense of presentism applies equally well in this case to presentism*.

Presentism struggled to explain how it is that present and non-present entities can be related when the latter type of entities do not exist. For instance, Markosian (forthcoming) suggests that we can stand in the "admiring" relation with Socrates'

defining properties, but this has been shown to be unsatisfactory. We admire the *entity* that is Socrates, and not certain abstract properties in isolation from the individual that is Socrates.

This problem is ineffective against presentism*, because strictly, there are no entities, whether past, present, or future. At present, there is a temporal Brannon-like slice, but there is no Socrates-like slice. I do not stand in any relation to Socrates, because neither "I" nor "he" exists. Furthermore, the present Brannon-like slice cannot stand in any relation (such as admiration, love, hate, etc.) with any other slice because slices are not the sorts of things that can express admiration, or be deserving of admiration. There must be "whole" persons to do such things, and as I have made clear, there are none of these.

We have seen that another difficulty for presentism is that there seems to be no way to explain the possibility of singular propositions about non-present objects. Markosian (forthcoming) suggests that we can analyze such propositions as being meaningful without being true or false, yet this seems incoherent. In talking about Socrates, we want to say that what we are saying is meaningful because it is at least possible to say whether it is true or false.

With presentism*, the matter is different. We can dispense altogether with singular propositions about individuals such as Socrates, while yet being able to give an analysis of how such talk seems to be possible. So instead of saying

(18) Socrates is a philosopher

we can analyze (18) as follows:

(19) $P(\forall x_1, \ldots, \forall x_n)(\exists x_n)((x_1$ is the referent of a Socrates-like temporal slice & $x_1$ is a philosopher-like temporal slice) & ($x_2$ is the referent of a Socrates-like temporal slice & $x_2$ is a philosopher-like temporal slice) & … & ($x_n$ is the referent of a Socrates-like temporal slice & $x_n$ is a philosopher-like temporal slice)).

(19) states that if what is wanted is the "entity" that is Socrates, one must pull together all the temporal slices that are sufficiently Socrates-like, for this is the only way to "construct" anything like the person we take to be Socrates. In doing this, (19) does not commit one to the existence of any Socrates-like temporal slice, let alone the "whole person" of Socrates. (19) simply says that if, for sake of convenience, one would like to talk of Socrates (as in (18)), then there is a coherent way to analyze such talk into the ontologically harmless (19). Of course, the presentist* position does not acknowledge the existence of "whole" entities at all, so there cannot be singular propositions about these sorts of things. But as I noted earlier, it is convenient to talk as though collections of temporal slices are identical with the entities of our everyday experience, and in keeping with this convenient fiction, there is a way to analyze such talk.

The problem of temporal becoming is simply a difficulty that presentism cannot explain away; at the moment of the present, entities come into existence out of nothing. This would not be a problem if certain new entities came into existence from out of other entities, but the fact of present entities becoming something from nothing is a built-in feature of the presentist view.

It should be obvious at this point why presentism* avoids these complications. There is a straightforward way in which some things (indeterminate metaphysical atoms) become other things (determinate temporal slices) at the point of the present. With this solution, the word 'become' is used in the standard fashion, and we observe the world behaving as we would ordinarily expect it to, with certain micro-sized entities rearranging to form certain other macro-sized entities.

Lastly, we come to the truthmaker objection. We have seen previously that this objection places the presentist in a dilemma: either admit that there are past and future truths, or else deny that there are any such things. If the presentist chooses the former option, then he has answered the truthmaker objection (true propositions can be made about present, as well as non-present entities), but his view loses its coherence, since it is no longer the *presentist* view that he is defending. If the presentist chooses the latter option, then he has still answered the truthmaker objection (but now, true propositions can only be made about present entities), though his view suffers from a certain implausibility, since it seems that we *can* make these sorts of propositions about non-present entities. (In talking about Socrates, other people understand what I am saying.) Clearly, neither of these options is very appealing.

As before, there is a presentist* solution that can be given to the truthmaker objection. In order to ground truths about present entities, we must again appeal to convenience, and insist that there are "collections" of temporal slices, such that we can refer to these collections as distinct individuals. There really are no such things, but if we want to talk about persons, objects, or any other sort of individual thing, this is the

sort of analysis we have to give of the matter. But if we take this approach to the problem, then this presentist* "solution" is even less satisfactory than the presentist responses that I have already dismissed: we have illicitly gathered together a particular group of temporal slices so as to create a whole entity, but we now find that there is nothing to ground the truth or falsehood of any proposition made about such an individual. For example, assume we "create" a desk out of a large number of temporal desk-like slices. If we make a proposition about this "desk", there is no set of circumstances obtaining in the world such that we can point to it, saying "There is a desk", since all that we could be referring to would be instantaneous desk-like temporal slices. And since we can only refer to these slices one at a time, there is nothing substantial enough existing in the world to ground our propositions about the desk.

I prefer a different solution to this problem. The truthmaker objection has obvious parallels to the "singular propositions about non-present entities" objection. If past and future entities exist, then these things will ground the truth or falsity of our statements concerning them, and if they do not exist, then our talk about them will be ungrounded. In a similar fashion, if such non-present individuals exist, then it is much easier to explain how we could make singular propositions about them. Likewise, if they do not exist in any sense, then such propositions seem to be impossible.

With this similarity apparent, I will proceed by denying that there are singular propositions about non-present entities. My obvious reason for doing this is that there is nothing to ground the truth of such propositions. Socrates does not exist, so there is nothing to make my propositions about him true or false. And since I deny that Socrates

exists in any sense, it is also easy to see why I am denying that there can be any singular propositions about him. If I did not deny this possibility, then I would have to explain why it is that I can refer to an entity when there is nothing grounding the truth of such a reference. Singular propositions about Socrates (or any other past or future individual) are impossible, but I can still explain why it is that such propositions *seem* to be possible, and why such propositions *seem* to be meaningful when they are uttered. My solution here proceeds exactly as with the solution to the problem of singular propositions about non-present entities, with (19) above serving as the appropriate paraphrase of this phenomenon.

I think the case for accepting presentism* is compelling. There are several difficulties that presentism cannot adequately answer. Presentism* comes with a definite ontological cost, in that it must acknowledge the existence of a certain sort of non-present entity, while denying the existence of present "entities" generally (as these are normally understood), but I think this cost is outweighed by the solutions it provides.

# IV. THE SPECIAL THEORY OF RELATIVITY

## 1. Exposition of the Theory

What is generally taken to be the most telling objection against presentism – and this would include my hybrid presentist* view – arises, not from strictly philosophical considerations, but from physics. As implied by its name, presentism requires an ontologically distinguished present. For the presentist, it would be odd to claim that what is present (i.e. what exists) for one individual is not present for another. But this is exactly what the Special Theory of Relativity (STR) seems to require, for according to STR, what cannot be had is anything like a distinguished present. Rather, what is present is entirely dependent upon one's frame of reference, and STR does not recognize privileged reference frames. This will be the heart of the objection against presentism from STR. First, however, let us see in some detail what motivates STR, and what practical consequences can be drawn from it. In this fashion, we will be able to see more clearly why it is that presentism runs afoul of STR.

To begin, it is helpful to think of a reference frame (or coordinate system) as a "point of view" from which a theoretical observer is able to examine the occurrence of events. Further, no one reference frame is privileged with respect to any other frame, as all such frames are in motion relative to each other. For example, from our vantage point as humans, it is rather common to measure physical movement with respect to the earth, if for no other reason than that most of us spend our entire lives inhabiting this particular planet. When concerns over STR are not especially pressing, it is easy –

though incorrect – to think of the earth as being the proper viewpoint from which to judge the behavior of all physical phenomena whatever, be it motion, distance, or as we will see later, existence. When one sees a plane flying at the speed of sound, one does not usually consider that the earth itself is hurtling through space at a tremendously greater rate of speed than that at which the plane is flying. It is simply very convenient – and not incorrect – to judge the behavior of proximate physical occurrences with respect to the earth. But in so doing, it is important to remember that the earth itself is in motion relative to an even larger point of reference, such as one would have on the sun. And this is an important point at which STR breaks from classical mechanics. On the classical view, it was thought that space and time were absolute, that there was an ultimate frame of reference according to which all the physical incidents of the universe could be accounted for. Due to major developments in physics at the turn of the 20th century, we now know that the classical notion of an absolute frame of reference is inaccurate. Instead, there are infinitely many potential reference frames from which to observe physical occurrences, and these occurrences are always *occurrences according to a particular reference frame*.

On the classical view of physics, distances and durations were invariant across all inertial frames of reference, but this is not the case with STR.[9] STR relies upon a four-dimensional spacetime manifold, in which the coordinates of a given point are represented in the following manner, *x, y, z, t,* where *t* (time) is to be regarded just like the three spatial dimensions *x, y, z*. On the classical way of looking at things, the physical entities were thought to exist *in* space and *through* time, so that the spatial

location of a given entity was distinct from its location in time. On the four-dimensional view, the matter is greatly simplified, as the element of time just picks out one more coordinate (in addition to the three spatial coordinates) allowing for even greater precision in locating events within spacetime. Part of the motivation for developing the notion of the four-dimensional manifold is that the notions of space and time are always inextricably linked. As H. Minkowski noted, "The objects of our perception invariably include places and times in combination. Nobody has ever noticed a place except at a time, or a time except at a place" (1908: 76). Events in spacetime are separated by *intervals*, or combinations of distance and duration. Thus, on the spatiotemporal view, one might describe two neighboring points, A and B, by saying that A's spatiotemporal location is *x, y, z, t,* and B's is *x', y', z', t'*, where these two sets of coordinates describe two distinct locations that are as close as one may wish to stipulate (since there are indefinitely many points that one can designate with the coordinates *x', y', z', t'*, such that they will be in the immediate proximity of *x, y, z, t*).

We are now in a position to state the central thesis of STR: physical laws and the speed of light remain constant in every inertial reference frame (where an inertial frame is one that is unaccelerated, that is maintaining a constant velocity). This notion can be clarified by the following widely referenced example from Einstein (1961). Imagine one is among a group of passengers traveling on a rather long train moving east at a constant velocity *v*. It will be appropriate for the moving passengers to regard the train as their primary reference frame. Further, we will label a point on the last car of the train *A'*, and a point on the first car of the train *B'*, such that if one took a snapshot of the train as a

whole, *A'* would be the westernmost part of the train, while *B'* would be the easternmost part. In addition, *A'* and *B'* will be equidistant from the mid-point of the train *M'*. We can also easily imagine a length of embankment along the railroad tracks that corresponds exactly with the length of the train, such that, at a given instant, points *A*, *M*, and *B* along the track will line up with *A'*, *M'*, and *B'* of the train. If, relative to *M*, lightning strikes simultaneously at *A* and *B*, then since the speed of light remains constant within a given inertial frame, it will be the case that rays of light from both *A* and *B* will reach *M* simultaneously. But notice that, even though points *A'*, *M'*, and *B'* correspond appropriately with *A*, *M*, and *B* at the time of the lightning strike, it will not be the case that the lightning strikes will appear to be simultaneous to the observers riding the train. This result arises due to the fact that the train is traveling east, and hence, towards the lightning strike occurring at *B*, and away from the strike occurring at *A*. This fact entails that the light ray emitted from site *B* will reach the train's passengers slightly sooner than the light emitted from site *A*. The consequence is that such notions as simultaneity only have sense in relation to a specific reference frame. What is simultaneous to observers in one reference frame will not necessarily be simultaneous to observers situated in another frame. "Every reference-body (co-ordinate system) has its own particular time; unless we are told the reference-body to which the statement of time refers, there is no meaning in a statement of the time of an event." (1961: 31) The notion of time, as of simultaneity, only has meaning relative to a specific reference frame.

## 2. Why STR Poses a Problem for Presentism

It is here that the difficulty for presentism[10] becomes glaring. If our best physical theories entail that there is no such thing as absolute simultaneity – or of absolute time in general – then the presentist finds herself in an embarrassing position. She maintains that what exists is what is present, and it is eminently desirable that existence should not be relative, but that it be invariant across reference frames. (It would be odd for two observers *A* and *B*, both of whom share different reference frames, to emphatically declare that the other does not exist.) Yet, if STR is correct this cannot be. It is simply not the case that the notion of the present will be the same for distinct reference frames. As seen in the train example, where observers at one reference frame observe the occurrence of a given event at a given time *t*, it will not be the case that observers in another frame observe the same occurrence at *t*, but rather at some earlier moment $t - 1$ or at some later moment $t + 1$, as the case may be. Of course, given the speed at which light travels, in most instances involving observers in distinct reference frames – such as the train example – the lack of simultaneity across frames will be so slight as to be practically imperceptible. But the difficulty remains that strictly, the relation of simultaneity does not extend across reference frames, which means that the notion of an absolute present, which is so crucial for the presentist position, is incoherent. For if there is no absolute present, then there is no privileged ontological class of entities enjoying existence. Put more perspicuously, the argument from STR against presentism can be set out as follows:

(20) STR is true. (Premise)

(21) According to STR, there is no such thing as a privileged reference frame. (Premise)
(22) According to STR, the notion of simultaneity is only coherent relative to a specific reference frame. (Premise)
(23) The notion of absolute simultaneity is incoherent. (From 20, 21, 22)
(24) Presentism requires the notion of absolute simultaneity. (Premise)

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(25) Presentism is false. (From 23, 24)

## 3. Presentist Responses to STR

One response, taken by Mark Hinchliff (2000), has been to acknowledge that STR poses difficulties for presentism, and that therefore the philosophy must be adapted to fit the physics. To this end, Hinchliff elaborates two views, 'point presentism', and 'cone presentism', each of which amounts to a denial of (24). (It is worthwhile to note that Hinchliff eventually abandons point presentism, while endorsing cone presentism.) In brief, point presentism is best described as "spatiotemporal solipsism", in that nothing exists except what exists here-and-now. It might seem that the location of 'here-and-now' is to be determined by the spatiotemporal location of the individual espousing the view, but this is false. Point presentism requires that only a single point of spacetime exists. For if the spatiotemporal location of the utterance distinguishes what point exists from what does not, the point presentist would have to acknowledge that there are multiple points in spacetime that are real, but from the vantage point of any one of them, the others are not real.[11]

In our pre-relativity way of viewing the world, we distinguish between space and time. Presentism, on this view, is strictly about time, and has nothing to do with space. On this way of seeing the matter, the only things that exist are those that exist *now*. But once we familiarize ourselves with STR, we come to understand that the notion of time cannot be separated from that of space, which means that if we hope to maintain presentism in spatiotemporal terms, we must modify our ontology so that what exists is what exists *now* (at this time), as well as what exists *here* (at this place). Hence, we see the motivation for point presentism.

Alluding to point presentism's solipsistic character, as well as what he takes to be its general lack of appeal (S580), Hinchliff settles on cone presentism, which entails that an event E's present will consist of E, as well as E's past light cone – which are all the events in E's absolute past. It is worth remarking here that although the notion of absolute simultaneity is not well defined in the Minkowskian four-dimensional manifold, three other notions are so defined.[12] In relation to any given point *p*, it is possible to define, relative to *p*, the *absolute future of p*, the *absolute past of p*, and those spacetime points that are *spacelike separated from p*. The set of points in *p*'s absolute future are those that can be reached from *p* by a signal traveling at or below the speed of light. The set of points *q* in *p*'s absolute past are those from which *p* may be reached by a signal emitted at *q* traveling at or below the speed of light. Finally, the points spacelike separated from *p* are those that cannot be connected to *p* by any signal traveling at or below the speed of light. For any set of points *A*, if *A* is neither in *p*'s absolute future nor in *p*'s absolute past, then *A* is spacelike separated from *p*. The result of this is that

although absolute simultaneity is not well defined on the Minkowskian view, it is well defined that certain spacetime points may be reached from other spacetime points by signals traveling at or below the speed of light. So when Hinchliff picks out an event E, as well as all the events in E's absolute past, he is taking advantage of an intrinsic feature of Minkowskian spacetime. For any event E, there will be a well-defined set of points that constitute E's absolute past, but it is important to remember that this past is only absolute relative to E; there may be another point F, such that F's absolute past contains spacetime points found in E's absolute future.

Another common presentist response has been either to attack (20) or to deny that STR has anything to do with the philosophical issue of time. In this vein, authors such as Prior (1970), William Craig (1990), and Markosian (forthcoming) have rejected (20) on the grounds that STR draws extravagant metaphysical conclusions from strictly epistemological premises – namely, that an absolute reference frame does not exist because we have no empirical method of verifying whether this is so or not. The role of science is to observe and draw conclusions from observable phenomena, but to the extent that the conclusions exceed the scope of what is observable, science has thereby overstepped its bounds. It is empirically verifiable that the speed of light remains invariant across inertial reference frames. It is also recognized that there is no way of empirically verifying the existence of a privileged reference frame. But it does not thereby follow that there *is no such thing* as a privileged reference frame. In short, the roots of STR are thoroughly verificationist, and as verificationism has been widely acknowledged to be an incoherent philosophical view, STR should likewise be

abandoned as a *philosophical* view, or at the very least, the claims of STR should be reined in so that the possibility of absolute time is left open.

### 3.1 Point Presentism and Cone Presentism

How do these attempted presentist solutions fare? I will begin with Hinchliff's two proposals. For starters, Hinchliff (2000: S579) sees an argument offered by Hilary Putnam (1967) as being persuasive against point presentism. Putnam's objection amounts to the following: there exist events that are past which were never present. It is possible that there be a series of events *X* that was spacelike separated from some earlier events *Y* on my "world line" – where 'world line' is just an illustrative way of picking out the series of four-dimensional points that constitute my spatiotemporal location over the course of my life – which means that this event was never present for me. And yet, it is possible that *X* is now timelike separated from me, i.e. in my absolute past, which further means that it is possible for *X* to be in my past without ever having been in my present (1967: 246). This would be an admittedly odd result, but it is not clear how this is relevant to the point presentist position, for the point presentist does not recognize anything like past or future events. Putnam's objection requires that the point presentist acknowledge the existence of an absolute past for a given point *p*, but this is exactly what the point presentist denies. As it stands, there is one existent spatiotemporal point, while everything else is nonexistent. There is simply the here-now, and to say that there exists a past event that was never present is nonsensical on this view because no past

events exist in any sense. The intuitive idea of moving from present to past, which this objection assumes, is precisely what the point presentist denies.

This argument against point presentism falters because the point presentist will not acknowledge that there is anything to point to which answers to the name of 'past event'. Although this objection is irrelevant against point presentism, I see this irrelevance as being due to a misinterpretation by Hinchliff, and not a mistake on Putnam's part. The proper target for this objection is Hinchliff's cone presentism, which I will discuss momentarily.

A more telling line of attack is developed by Sider (2001: 45-47), who protests that a single spatiotemporal point is not substantial enough to accommodate all that exists. For instance, where a given spatiotemporal region can contain infinitely many spacetime points, it seems implausible that even a single person could occupy just one of these single points. But a single point is all that the point presentist can allow. (As we have seen, there are three well defined sets of spatiotemporal points for any given point *p*: those in *p*'s absolute past; those in *p*'s absolute future; those spacelike separated from *p*. Point presentism is the clearest analogue to pre-relativity, or "ordinary" presentism. Ordinary presentism requires that only the present time exists, and since point presentism seeks to take the spatiotemporal manifold into account – where space and time are no longer distinct – it must maintain that only the one spatiotemporal point exists. To claim that points in *p*'s absolute past or absolute future exist would be to depart radically from the ordinary presentist motivation.)

Again, the spatiotemporal solipsism that this view entails cannot accommodate the single entity whose existence is needed to anchor the solipsistic element of the view. Solipsism requires that one individual exist while nothing else does, but on the point presentist view, there is not even enough "room" for the single individual. As if this were not enough, the initial plausibility that motivated presentism – that only the present *time* exists – is lost when presentism is transformed into point presentism. Ordinary presentism allows for the existence of a large number of entities; so long as the entities in question are *present* entities, nothing is to be excluded. But, owing to the structure of the four-dimensional manifold, the point presentist can neither regard time and space as distinct, nor can she acknowledge an absolute simultaneity relation extending across reference frames. This means that only one spatiotemporal point has existence. However objectionable the idea of only present times existing may be, this ordinary presentist position does not imply the solipsism of point presentism, as ordinary presentism allows for the existence of other entities, so long as they exist at the present time. I take these arguments to be decisive against the point presentist position. What is gained – and I am unsure about what exactly this would be – is far outweighed by what is lost on this view.

Initially at least, cone presentism seems to fare much better. As noted above, this view entails that an event E's present will consist of E, as well as all the events in E's absolute past. According to Hinchliff (2000), there are three distinct advantages to the cone presentist position. "One virtue of the view is that it captures the idea that what is present is what I am seeing now. A second virtue is that it identifies the present with an

invariant feature of the special theory. A third virtue is that we are not alone." (S580) As far as the first virtue, it is worth having because many things we see, such as certain distant stars and planets, are strictly in our past here on earth. To see why this is so, one must simply note that the light signal traveling from them to us takes time, and necessarily these distant places existed prior to our reception of the light signal traveling from their spatiotemporal location to ours. The second virtue has to do with the structure of the view in question. A point in cone presentism's favor is that the framework posited – the past light cone of E – is a recognized and well-defined element of any spatiotemporal point *E* in the Minkowski manifold, and not something smuggled in out of purely presentist concerns. As for the third virtue, this is an advantage that cone presentism possesses over the earlier – and abandoned – point presentist view. Where the latter is thoroughly solipsistic, the former allows for the existence of other entities.

There are two arguments raised by Steven Savitt (2000), which are in turn countered by Hinchliff (2000). Savitt thinks the cone presentist should be concerned about the status of events in an observer E's absolute past. According to this position, E's present includes events that are now in E's past, which seems an odd line for a presentist to adopt. For example, if the collapse of a distant star is calculated to have occurred 20 million years ago, then it follows that on the cone presentist view, this rather distant event is now present. Hinchliff sees this objection as misguided, since the notion of 'occurring 20 million years ago' must come from outside STR, and is therefore not valid. For there to be anything like a fact of the matter concerning the time of an event's

occurrence, there must also be a distinguished reference frame, and this is precisely what STR does not allow. The objection fails because it is inconsistent. If Savitt wanted to allow for the existence of a privileged reference frame, then there would be no need to postulate cone presentism, when plain old, pre-relativistic presentism would suffice. And if Savitt wishes to maintain his position that there is no such thing as a privileged reference frame, then he must acknowledge that there is no way of measuring how long ago a seemingly past event occurred. In either case, presentism – either in its ordinary or variant form – survives.

Savitt's second point of contention is that it seems arbitrary for a cone presentist to only allow for E's past light cone. Why not admit E's future light cone as well?

> [Cone presentism] seems to rest on the idea that events on the past light cone of E have a lightlike separation from E and hence the spacetime interval from E to (say) E' (on the past light cone of E) is 0. But then it seems arbitrary to exclude from the present events on the future light cone of E, which also are lightlike separated from E. It is hard to see, then, why the Big Crunch or the endless heat death of the universe should be excluded from the present…it does seem desperate to define presentism in such a way that events virtually at the origin of our universe or in the remote future are included in the present. (2000: S566-S567)

In part, this objection is merely an extension of the previous one. Savitt thinks it odd that spatiotemporally distant events – whether past or future – should be counted among what presently exists. But a further point is that presentism – if it is to regard past and future as being symmetrical with respect to the present – should hold that the past and future are both nonexistent. What could make the past light cone of E privileged in such a way that would not hold also for E's future light cone? Hinchliff responds that the difference is not arbitrary, and this is so for two reasons. First, the set of points in E's

past light cone are those *from* which a light signal could be sent *to* E, whereas the set of points in E's future light cone are those *to* which a light signal can be sent *from* E. So there is an asymmetry built into the spatiotemporal framework itself. Second, this asymmetry occurs as a result of the peculiar nature of causation, which extends from past to future, and not vice versa. The distinction between the past and future light cones is far from arbitrary.

I must now mention the relevance of Putnam's (1967) earlier argument. I noted that Hinchliff misinterpreted it to be directed against point presentism, but as I showed above, it is completely beside the point when leveled against that position. Rather, it is a reasonable argument to make against cone presentism. Here it seems appropriate to quote the relevant passage in full:

> …I might attempt saying that statements about events that are in neither the upper half nor the lower half of my light-cone have no truth value. In addition, statements about events in the upper half of my light-cone have no truth value, since they are in my future according to every coordinate system. So only statements about events in the lower half of my light cone have a truth value; only events that are in "my past" according to *all* observers are determined.
>
> This last move, however, flagrantly violates the idea that there are no Privileged Observers. Why should a statement's having or not having a truth value depend upon the relation of the events referred to in the statement to just one special human being, *me*? Moreover, the following highly undesirable consequence flows from this last view: let Oscar be a person whose whole world-line is outside of the light-cone of me-now. Le me-future be a future "stage" of me such that Oscar is in the lower half of the light-cone of me-future. Then, when that future becomes the present, it will become true that Oscar *existed*, although it will never have had a truth value to say in the present tense "Oscar exists now." Things could come to *have been*, without its ever having been true that they *are*! (1967: 245-246)

It seems clear that these remarks should be understood as objections to cone presentism, which is indicated by Putnam's statement that "only events in the lower half of my light

cone have a truth value; only events that are in 'my past' according to *all* observers are determined". And the fact that statements in "my past" are regarded to be so by all observers whatsoever corresponds as well with the fact that for any event E, there will be an absolute past – E's past light cone – for E, which means that regardless of one's reference frame, it will be the case that E's absolute past remains constant.

In light of Putnam's objection, how does cone presentism fare? It can survive unscathed, but only at a substantial cost. The cone presentist position escapes because Hinchliff does not acknowledge E's past light cone as being genuinely past. Rather, it is something like an enlarged present. Putnam sees E's past light cone as being E's absolute past, and although Hinchliff admits this as well, it is not clear what he means by this. For instance, he takes pains to distinguish his own position from that of Tooley (1997), when he says that Tooley's position is not presentism, as it regards the past and present as being equally real (2000: S585). Furthermore, the only way Hinchliff avoids Savitt's (2000) first objection – that seemingly distant past events are now present – is to deny that those past events are genuinely past. The rather odd result is that Hinchliff's view is very like Tooley's, except that whereas Tooley admits the existence of both past and present, he distinguishes between them, while Hinchliff accepts what one would normally think of as past and present, but lumps them both together into a gigantic present. Now it is easy to see why Putnam's objection – though appropriately directed at cone presentism – proves ineffective. Putnam sees cone presentism as admitting a genuine past as well as a present, and his complaint depends on this because the problematic result is that entities can become past without ever having been present.

Hinchliff's solution is to deny that the past light cone of E is really past, and where there is no past there is no problem of past entities never having been present. Once an entity is present it remains so, never becoming past.

Although cone presentism seems to survive Putnam's argument, it has been transformed into something scarcely recognizable as presentism. Presentism began as a rather intuitive view, claiming that the only existent things are present things, while yet acknowledging that these things can become past, and thereby cease to exist. Cone presentism, on the other hand, acknowledges that the future is nothing at all, but instead enlarges the present, so that what was once regarded as the past is now absorbed into a redefined present. In light of this it must be concluded that as a *presentist* solution cone presentism fails.

### 3.2 STR and the Problem of Differing Intuitions

I find the anti-verificationist line of attack against STR more compelling. This approach may need to be nuanced a bit, for as Sider (2001: 42) notes, in clashes between science and metaphysics the results have generally favored science. In spite of this verdict, one might justifiably ask whether science and metaphysics are actually at odds on this point. What does STR really tell us about time? If STR is a scientific theory, and if time is a metaphysical issue, we may wonder how much STR should be allowed to say on the matter. According to George Bealer (1987), scientific essentialism is the doctrine that

> …There are truths that can be known to be necessary only if empirical evidence is used; more briefly, there are essences that can be known only with the aid of

> empirical science. For example, scientific essentialists hold that certain types of natural-kind identities (e.g., that water = H2O, that heat = mean kinetic energy, that gold = the element with atomic number 79) are necessary if true, and they hold that it is impossible for a person to know that such identities are true without the aid of empirical science. So if scientific essentialists are right, the knowledge that such identities are necessary cannot be absolutely *a priori*…Instead, this knowledge must always be (at least) partially *a posteriori*; it is essentially *a posteriori*. (291)

The spirit of the argument against presentism from STR is clearly of this scientific essentialist bent, for it holds that there is necessarily no notion of absolute simultaneity within the four-dimensional spacetime manifold. Contemporary physics posits the spatiotemporal manifold, as this framework provides the greatest amount of (scientific) explanatory power. Through extensive experimentation it has been discovered that the notion of absolute simultaneity is incoherent. This discovery is deemed to be a *necessary* one, as the notion of absolute simultaneity is incomprehensible within the framework of contemporary physics.

But there is a problem here: how is the physicist able to say that the notion of absolute simultaneity is *necessarily* false? Presumably she has conducted the appropriate experiments, read the important papers on the subject, and so on. Sooner or later this chain of observation and testimony must end, and when it ends, what provides the starting point for the observation and testimony that follows? Bealer's answer is that *intuitions* serve as the initial point of departure for the physicist, since empirical evidence is unable to provide the conclusion that any physical occurrence is a necessary one (1987: 300). If this is so, then what intuitions motivated STR (or the arguments from STR against presentism)? It will not be important to try and enumerate all of them. What is crucial to recognize is that one of the intuitions holds that the speed of light

should decide certain notions concerning time. For two observers O and O' occupying two distinct reference frames, the propagation of a light signal from O to O' is not instantaneous, but takes a certain amount of time to travel between the two frames, which means that what occurs at one frame will not be absolutely simultaneous with what occurs at the other frame. But why should one agree with this intuition? The speed of light is observable, whereas time is not. And it was decided that difficulties concerning time are to be settled by means of observable phenomena, i.e. the speed of light. Time itself cannot be observed, but where the behavior of a certain entity – light – is deemed an appropriate surrogate, time is thought to be within the jurisdiction of science. But is this intuition beyond contention? Would it be unreasonable to suppose that problems about time cannot be so resolved? It would seem not. Following Bealer's notion of 'intuitions' as "noninferential beliefs regarding the applicability of a concept to a hypothetical case" (300), it is certainly plausible that one's intuitions on the matter could be that the propagation of light has nothing whatever to do with the abstract issue of time. The physicist's intuitions concerning the hypothetical case of our two observers O and O', is that the speed of light is applicable to the notion of simultaneity, with the result being that absolute simultaneity is rendered incoherent. The presentist's intuitions may be that the speed of light does not apply to the notion of simultaneity at all. And there are further intuitions involved in the matter. The physicist's intuition is that the issue of time is to be decided on the basis of empirical science, whereas the presentist's intuitions are that time is essentially a conceptual issue, to be decided without recourse to empirical observation. The argument against presentism from STR fails because the

objector bases her argument on empirical observation, which, as we have seen, carries no inherent necessity. But the necessity is what gives the objection from STR its bite, and in order to account for this, the objector must admit that she is basing her empirical observation on certain intuitions, none of which the presentist is obliged to hold.

In conclusion, STR may or may not have something to say against presentism. What I have tried to demonstrate is that however this matter is decided, intuitions must play a key role. Many presentists' intuitions are that STR has nothing to do with presentism. Opponents of presentism claim that their intuitions are very different: STR shows that presentism is not a viable philosophical position. For my purposes, it has been sufficient to show that the presentist's intuitions are perfectly justifiable, which further means that there is no reason for her to accept the intuitions of her opponents.

# V. CONCLUSION

I have argued that many of the objections brought against presentism are persuasive, and that no compelling presentist answers have been given. In light of this situation, there is a need for a view that shares similarities with presentism, while addressing the various deficiencies inherent in the original position. I have argued that presentism* is such a view, incorporating what I take to be the most beneficial elements from presentism.

## ENDNOTES

[1] I follow Michael Rea (2003) at several points in my explication of this issue.

[2] For example, see D.H. Mellor (1998) and Smith (1993) for two opposing views on this issue.

[3] For example, see Tom Crisp (2003) and Ned Markosian (unpublished).

[4] In what follows I will use 'eternalist' interchangeably with 'non-presentist'. For my concerns, it is generally the case that if one is not a presentist, then one is an eternalist. Regardless, nothing in my arguments hinges on this decision; it is merely a convenient placeholder.

[5] On this point, see Markosian (forthcoming), Steven Savitt (2000), Michael Rea (2003), and Ted Sider (2001), among others.

[6] For more on the possibility of combining presentism with a tenseless/B-theory view of time, see Rea (2003). For my purposes here, I will construe presentism similarly to the majority of those who endorse it, namely, as involving a commitment to a tensed/A-theory view of time.

[7] This is the view of such growing-block theorists as Broad (1959), and Tooley (1997), both of whom claim that the past exists, though the future consists in nothing at all.

[8] Hereafter, I will use the term 'temporal slice(s)' interchangeably with 'physical atom(s)'. For my purposes, they are identical.

[9] I follow Rea's (2003) explication at several points in this paragraph.

[10] As noted in the introduction, I will not be offering here a separate analysis of the relative merits (or demerits) of presentism and presentism*. As far as I can see, the argument from STR is addressed equally to both positions, and my proposed solution does not depend upon an adherence to either position at the expense of the other; both are perfectly acceptable.

[11] Sider (2001: 46).

[12] I follow Sider (2001: 43-44) closely in my explication of these three notions.

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